



V3DR3-80CT31111

Ranger3

3D MACHINE VISION

SICK
Sensor Intelligence.



Ordering information

Type	part no.
V3DR3-80CT31111	1141150

Other models and accessories → www.sick.com/Ranger3



Detailed technical data

Features

Technology	3D laser triangulation, 2D line scanning, color
Streaming	✓
Shutter technology	Global-Shutter
Example field of view	Free of choice by lens selection
Exposure mode	Linear HDR
Illumination	To be ordered separately as accessories
Data synchronization	Free running, encoder triggered, external triggering
3D measurement	✓
Scatter measurement	✓
Reflectance measurement	✓
Spectral range	400 nm ... 950 nm
Lens	C-mount
	Optical format 1"
	Note To be ordered separately as accessories
Task	Detecting - Standard objects Measuring - Dimension, contour and volume Monitoring and controlling - Quality Determining position - 3D position determination

Mechanics/electronics

Connector material	M12: Nickel-coated brass
Supply voltage	24 V DC, ± 20 %
Power consumption	12 W
Enclosure rating	IP20 IP65, by ProFlex protection hood IP67, by ProFlex protection hood
Housing material	Aluminum

Housing color	Blue, powder-coated
Weight	330 g
Dimensions (L x W x H)	77 mm x 55 mm x 55 mm

Performance

Sensor properties	
Sensor resolution	2,560 px x 832 px
Pixel size	6 µm x 6 µm (3D) 3 µm x 6.4 µm (High Resolution)
Image sensor	CMOS sensor from SICK with ROCC technology, M30
Scan/frame rate	69,000 3D profiles/s, in AOI 7,000 3D profiles/s, full format
Maximum Hi-Res color rate	15,000 RGB lines/s
Maximum Hi-Res grayscale rate	≤ 30,000 Lines/s
Sensor resolution	2,560 px x 832 px
Color resolution	5,120 px
Maximum 3D height resolution	16 bits, 1/16 subpixel
Grayscale resolution	5,120 px

Interfaces

Ethernet	✓ , UDP/IP
Remark	GigE Vision Standard
Data transmission rate	2.5 Gbit/s
Configuration software	Stream Setup
Operating system	Windows 7, Windows 10
Application programming interface (API)	Proprietary SICK GenIStream
Digital input	4 x HIGH = 10 V ... 28.8 V
Digital output	2 x TTL
Encoder interface	RS-422

Ambient data

Shock load	15 g, 3 x 6 directions
Vibration load	5 g, 58 Hz ... 150 Hz
Ambient operating temperature	0 °C ... +45 °C ^{1) 2)}
Storage temperature	-20 °C ... +70 °C ¹⁾

¹⁾ Non-condensing.

²⁾ If the ambient operating temperature will be ≥ 35 °C, ensure adequate heat dissipation when mounting the device.

Certificates

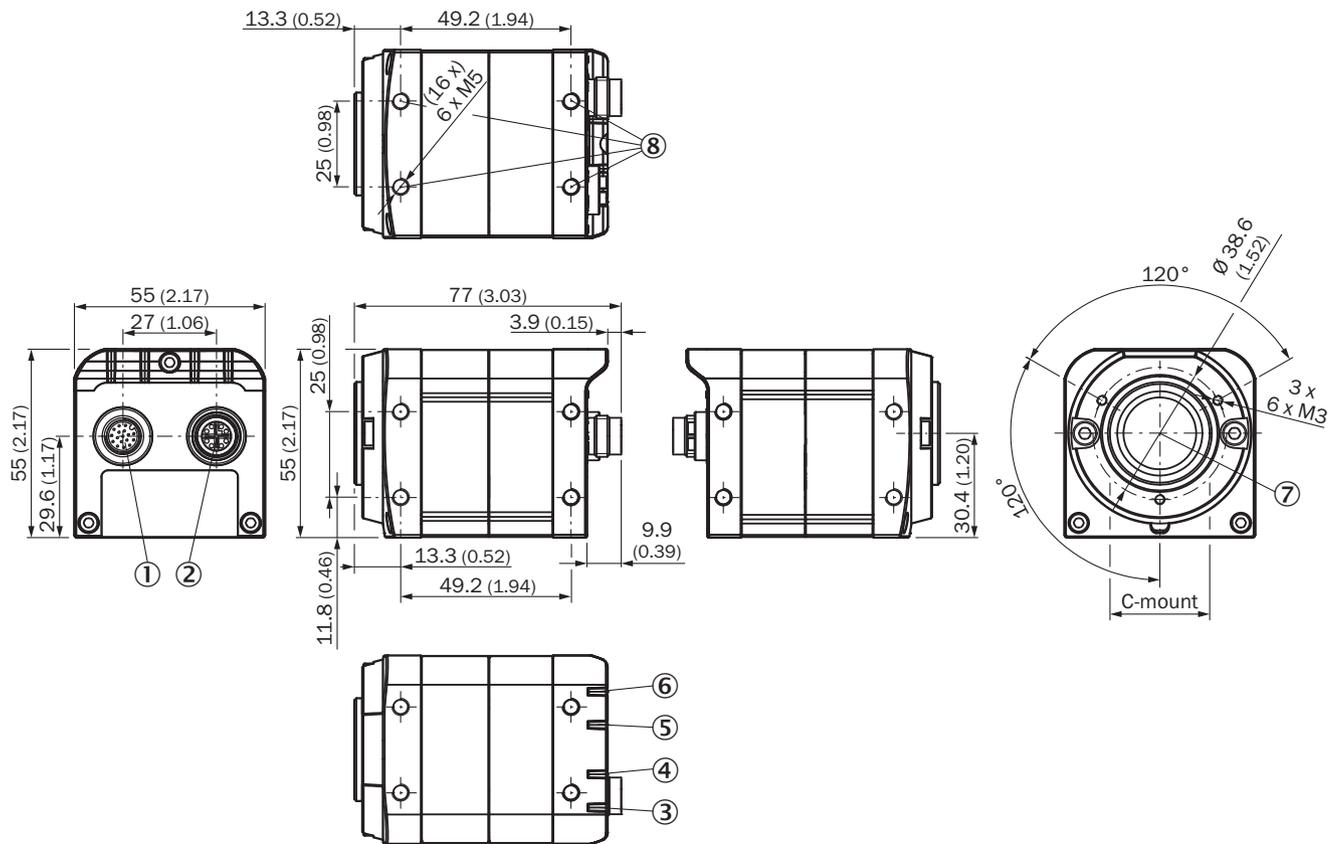
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
China RoHS	✓
cTUVus certificate	✓

Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓
GigE Vision	✓
GenICam	✓

Classifications

ECLASS 5.0	27310205
ECLASS 5.1.4	27310205
ECLASS 6.0	27310205
ECLASS 6.2	27310205
ECLASS 7.0	27310205
ECLASS 8.0	27310205
ECLASS 8.1	27310205
ECLASS 9.0	27310205
ECLASS 10.0	27310205
ECLASS 11.0	27310205
ECLASS 12.0	27310205
ETIM 5.0	EC001820
ETIM 6.0	EC001820
ETIM 7.0	EC001820
ETIM 8.0	EC001820
UNSPSC 16.0901	43211731

Dimensional drawing

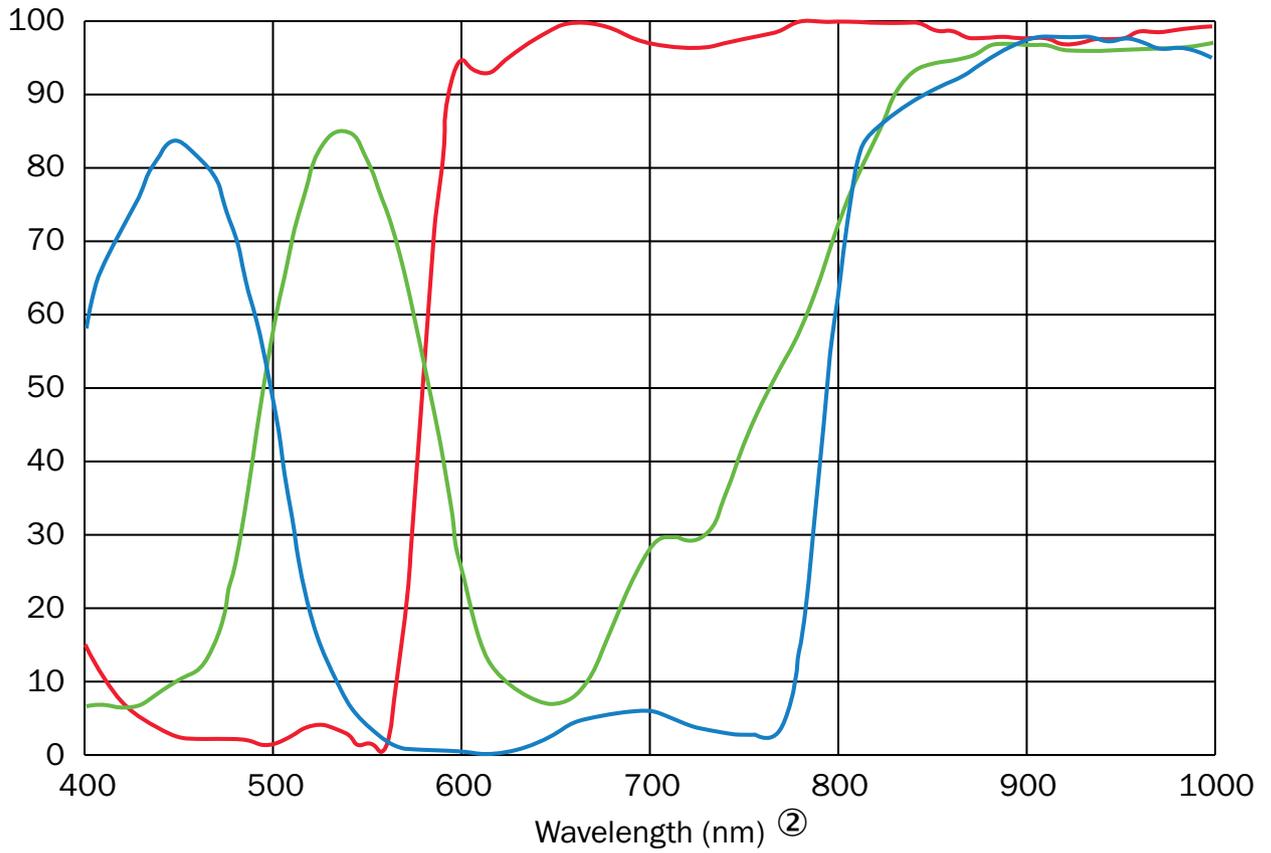


Dimensions in mm (inch)

- ① Power I/O connector
- ② Gigabit Ethernet connection (GbE)
- ③ LED; On
- ④ LED; State
- ⑤ LED; Link/Data
- ⑥ LED; Laser
- ⑦ optical axis, receiver
- ⑧ mounting holes, 4 x M5

Characteristic curve

Transmittance (%) ^①



— Red filter ^③

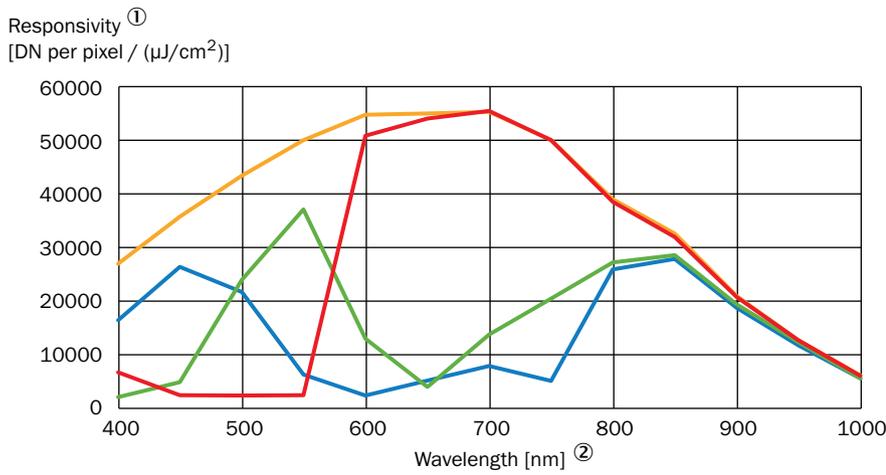
— Green filter ^④

— Blue filter ^⑤

Approximate spectral transmittance for the M30 high-resolution color rows

- ① Transmission
- ② wave length
- ③ Red filter
- ④ Green filter
- ⑤ Blue filter

Characteristic curve



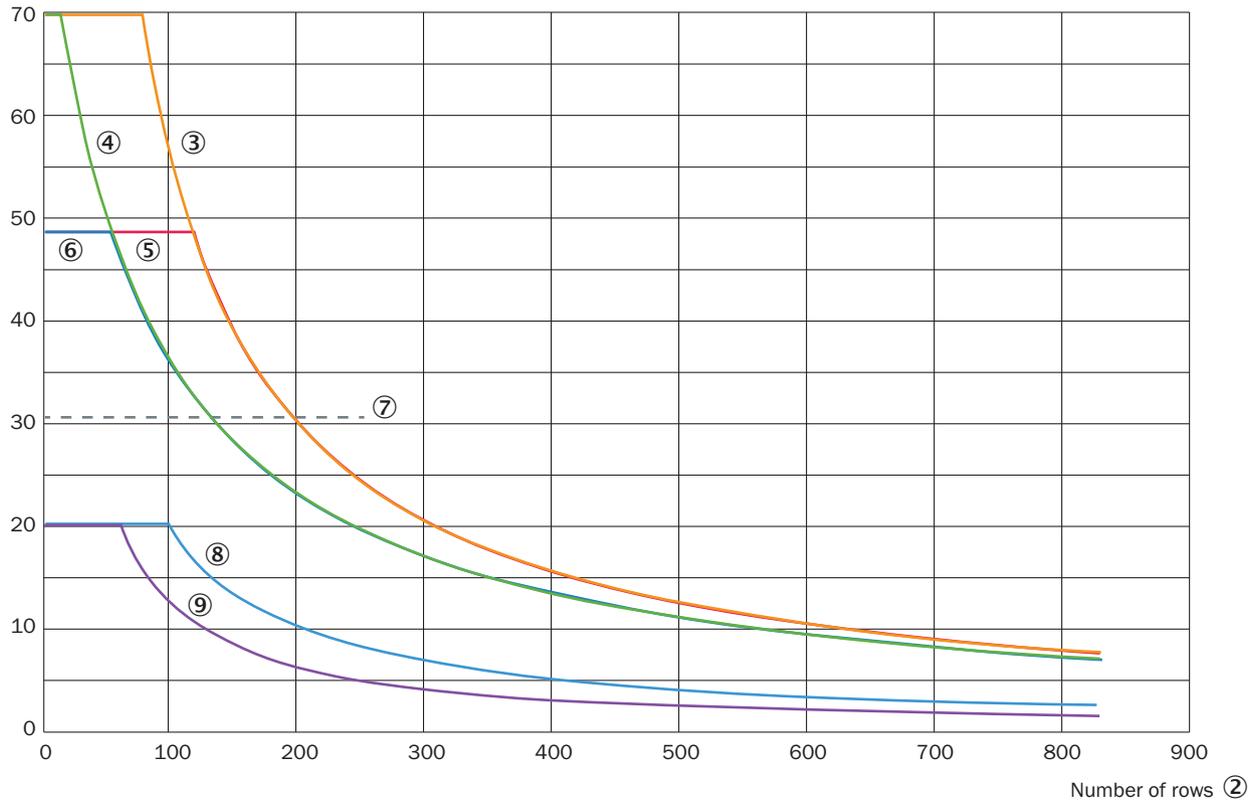
- No filter ③
- Red filter ④
- Green filter ⑤
- Blue filter ⑥

Approximate filter response for the M30 high-resolution color rows

- ① Sensitivity
- ② wave length
- ③ No filter
- ④ Red filter
- ⑤ Green filter
- ⑥ Blue filter

Characteristic curve

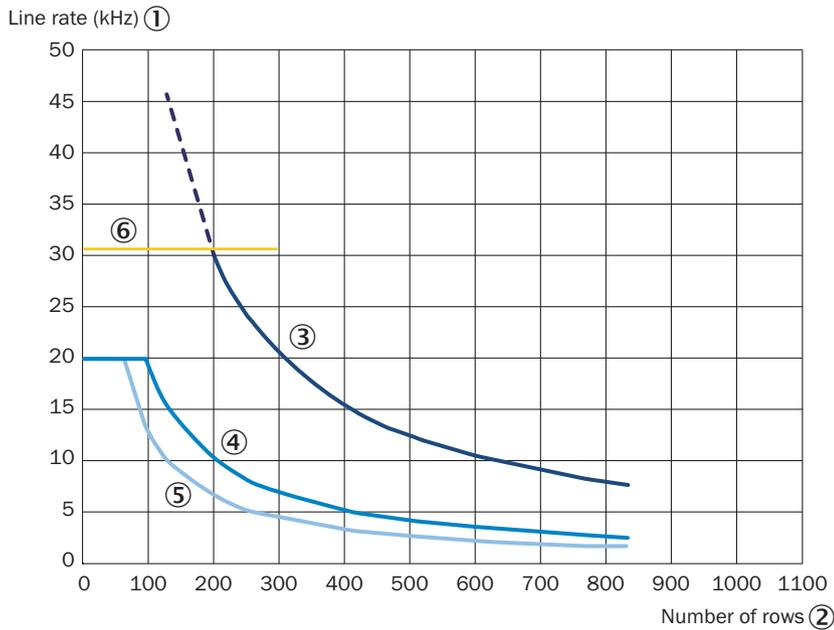
Line rate (kHz) ①



The maximum line rate is based on the number of sensor lines used

- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-80, Linear
- ④ Ranger3-80, HDR
- ⑤ Ranger3-60, Linear
- ⑥ Ranger3-60, HDR
- ⑦ Bandwidth limitation for Ranger3-60, 2,560 columns
- ⑧ Ranger3-40
- ⑨ Ranger3-30

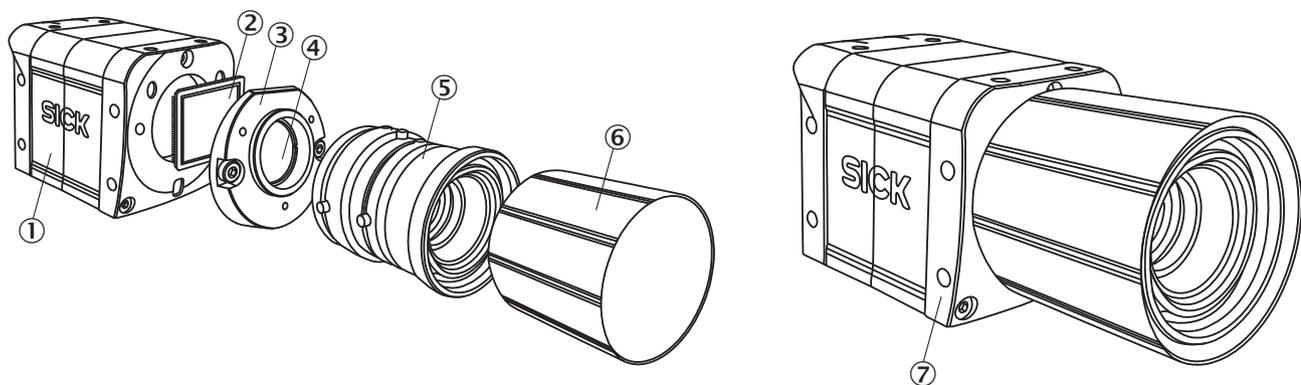
Characteristic curve



The maximum line rate is based on the number of sensor lines used

- ① Line rate (kHz)
- ② Number of lines
- ③ Ranger3-60, 2,560 columns
- ④ Ranger3-40, 2,560 columns
- ⑤ Ranger3-30, 1,536 columns
- ⑥ Bandwidth limitation for 2,560 columns

Exploded view



- ① Ranger3 (housing)
- ② CMOS sensor M30
- ③ scheidtflug adapter, replaceable
- ④ optical filter, replaceable
- ⑤ C-mount lens, replaceable
- ⑥ protective hood, replaceable
- ⑦ installed device with all listed parts

Recommended accessories

Other models and accessories → www.sick.com/Ranger3

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> • Description: Sensor/actuator cable, twisted pair, shielded • Connection type head A: Female connector, M12, 17-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 3 m, 17-wire, PUR • Application: Zones with oils and lubricants, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A2D-030U-V1XLEAX	6042772
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 8-pin, straight, X-coded • Connection type head B: Male connector, RJ45, 8-pin, straight • Signal type: Ethernet, Gigabit Ethernet • Cable: 2 m, 8-wire, PUR, halogen-free • Description: Ethernet, shielded, Gigabit Ethernet • Application: Zones with oils and lubricants 	YM2X18-020EG1M-RJA8	2106258
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 8-pin, straight, X-coded • Connection type head B: Male connector, RJ45, 8-pin, straight • Signal type: Ethernet, Gigabit Ethernet • Cable: 3 m, 8-wire, PUR, halogen-free • Description: Ethernet, shielded, Gigabit Ethernet • Application: Zones with oils and lubricants 	YM2X18-030EG1M-RJA8	2145693
reflectors and optics			
	<ul style="list-style-type: none"> • Description: C-Mount lens 1", focal length 25 mm, lens aperture 1.4 – 16 	C-mount lens	5327524
Mounting systems			
	<ul style="list-style-type: none"> • Description: Mounting bracket with camera adapter plate, including screws 	Mounting bracket	2091431

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com